

QLight[®] Swept Source Amplifiers

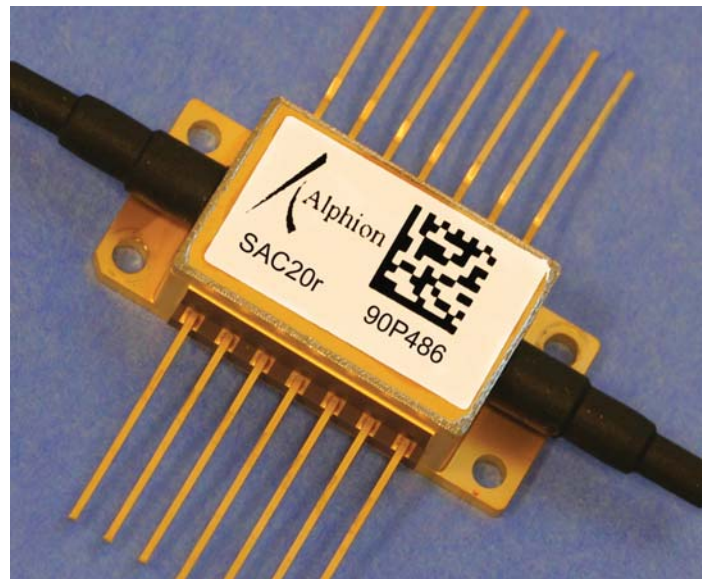
Models SAX20r, SAO20r, SAC20r

Features

- ◆ Wide bandwidth operation
- ◆ X-Band: 40 nm
- ◆ O-Band: 100 nm
- ◆ C-Band: 150 nm
- ◆ Low polarization dependence
- ◆ 14-Pin MSA package

Applications

- ◆ Medical imaging
- ◆ ASE source
- ◆ Fiber optic sensing
- ◆ Gain medium for swept sources



Description

The QLight[®] SAX20r, SAO20r, SAC20r are semiconductor optical amplifiers (SOA) suitable for use as gain elements in swept sources and as ASE sources. They are used in a broad spectrum of applications including fiber optic sensing, medical imaging and test & measurement. They are based on the Alphion proprietary QLight technology platform for the manufacturing of advanced discrete photonic devices.

The amplifiers are available in a MSA compliant, 14-pin butterfly package, based on the Alphion standard packaging platform. The use of a laser-welded, hermetic, organics-free package ensures highly reliable operation. The package incorporates both a thermistor and a thermo-electric cooler to provide stable operation of the SOA over the full operating temperature range.

Alphion offers a broad range of SOAs supporting wavelengths from 1000 nm to 1600 nm, with gain options from 5 to 30 dB and we can optimize parameters to meet your specific application needs.

Absolute Maximum Ratings*

Parameter	Symbol	Min	Typ	Max	Unit	Note
Operating Temperature	T_{case}	0		70	°C	Case Temperature
Storage Temperature	T_{store}	-40		85	°C	
Operating Bias Current	I_f			450	mA	
Optical Amplifier Reverse Bias	V_{rev}			2	V	
Thermistor Current	I_{therm}			5	mA	
TEC Current	I_{TEC}			1.8	A	
TEC Voltage	V_{TEC}			3.4	V	

* Stresses in excess of the Absolute Maximum Ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational section of the datasheet. Exposure to Absolute Maximum Ratings for extended periods can adversely affect the device reliability.

Operating Specifications*

Parameter	Symbol	SAX20r			SAO20r			SAC20r			Unit	Note
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max		
Operating Wavelength	λ	1040		1080	1250		1350	1450		1600	nm	
Peak Gain	G_{pk}	19			19			19			dB	
Gain Ripple	GR			2			2			2	dB	
Polarization Dependent Gain	PDG		-				2			2	dB	Gain peak ± 10 nm
Saturation Output Power	P_{SAT}	7			7			7			dBm	3.0 dB gain compression
Forward Voltage	V_f		2			2			2		V	
Operating Bias Current	I_{op}		300			300			300		mA	
Thermistor Resistance	R_{therm}		10			10			10		k Ω	At 25 °C
Total Power Consumption	P			4			4			4	W	$T_{case} = 70$ °C, By design

*Specifications are subject to change without notice.

Pin Assignments			
1	TEC (+)	14	TEC (-)
2	Thermistor	13	NC
3	NC	12	NC
4	NC	11	Chip (-)
5	Thermistor	10	Chip (+)
6	NC	9	NC
7	NC	8	NC

*Note: Pin #1 is marked by a bevel (notch) at the base of the housing

